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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

WASHINGTON

Forest Insect Laboratory
445 U. S. Court House
Portland, Oregon
January 27, 1943

FOREST INSECT SURVEYS
PORTLAND LABORATORY
1942 SEASON

General Statement

The forest insect survey in Oregon and Washington in 1942 was confined almost exclusively to stands of ponderosa pine east of the Cascade Mountain Range. As usual, no survey was made in the Douglas-fir region. Except for a general survey of the mountain pine beetle (Dendroctonus monticolae Hopk.) situation in Mount Rainier National Park, the entire survey program was conducted to obtain data on the status of the western pine beetle (D. brevicomis Lec.).

This latter insect is a very important limiting factor in the production of commercial ponderosa pine on a sustained yield basis. Epidemics cause annual losses totaling millions of dollars and in addition rapidly deplete the already waning reserve of mature pine timber. Even the endemic losses of recent years are a matter of serious consequence now, for every merchantable tree killed by the beetles is one less unit of raw material to feed the round-the-clock production of softwood lumber. The trend of western pine beetle infestation and the nature and extent of resulting losses are determined from the annual survey that is conducted throughout the ponderosa pine region. From the information thus obtained, direct control measures are undertaken where necessary, and cutting may be adjusted so that trees and areas that are most seriously threatened may be logged first. Thus the annual survey provides the basis for control, both direct and indirect.

In 1942, as in past years, the pine beetle survey was conducted cooperatively. Participants in this years survey were the Bureau of Entomology and Plant Quarantine, Forest Service, Indian Service, and Weyerhaeuser Timber Company, see attached map showing the area covered by each cooperator. Even closer cooperation than ever before was necessary because of extreme limitations both as to funds and available man-power. Through the concentrated effort of all parties concerned the 1942 survey was completed in record breaking time at a minimum of expense.

Summary - 1942 Pine Beetle Survey in Region 6

This years survey consisted primarily of a recruise of semi-permanent 320-acre check plots. The data collected on these plots, together with a small amount of general reconnaissance, provides the basis for generalized loss estimates to be issued by the Portland Laboratory in a series of reports covering the various forested areas concerned. Although the 1942 program was streamlined to meet existing shortages of man-power and funds by considerably reducing the number of plots cruised in comparison with cruises of recent years, it is felt that adequate coverage of the important commercial stands was obtained. A tabular statement of the 1942 survey follows.

1942 SURVEY STATISTICS

Forest Lands Surveyed	ACREAGE Check Plots	ACREAGE To Which Estimates Apply
Private	7,220	1,500,000
National Forest	23,754	3,000,000
Indian Reservations	7,930	1,530,000
State	640	30,000
Total	39,544	6,060,000
Forest Lands Unsurveyed		
Virgin		2,740,000
Cutover		2,000,000
Other		200,000
Total		4,940,000
Region Total		11,000,000

Percent of Region Surveyed Intensively = 0.36
Percent of Region to Which Estimates Apply = 55.0
Number of Reports To Be Written = 15
Number of Control Projects = 0

ESTIMATED 1942 PINE BEETLE CHECK PLOT LOSSES

	TREES		VOLUME				
	Total	Per Section	Total	Per Acre	Per Tree	% of Stand	Ratio to Previous Year
WASHINGTON (Basis: 23 Plots = 7,195 acres)	583	52	419,000	58	720	0.6	.88
OREGON (Basis: 99 Plots = 32,349 acres)	3,271	65	2,567,000	80	790	0.5	1.07
REGION 6 (Basis: 122 Plots = 39,544 acres)	3,854	62	2,986,000	76	770	0.5	1.04

DIVISION OF THE 1942 SURVEY PROGRAM

Surveyed by	Check Plot Acreage	% of Total
BE & PQ	1,795	5
BE & PQ and Forest Service	23,929	61
BE & PQ and Indian Service	4,120	10
BE & PQ and Weyerhaeuser Timber Co.	9,700	24
Total	39,544	100%

COSTS OF THE 1942 SURVEY PROGRAM

Field Work (July 22 to November 4, 1942)		Approximate Cost
BE & PQ		$2,150
Forest Service		1,300
Indian Service		400
Weyerhaeuser Timber Co.		100
	Total	$3,950

Office Work		
BE & PQ		$2,500
Indian Service		350
	Total	$2,850

Estimated total cost of survey $6,800

Submitted by

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1942 WESTERN PINE BEETLE SURVEY IN REGION 6

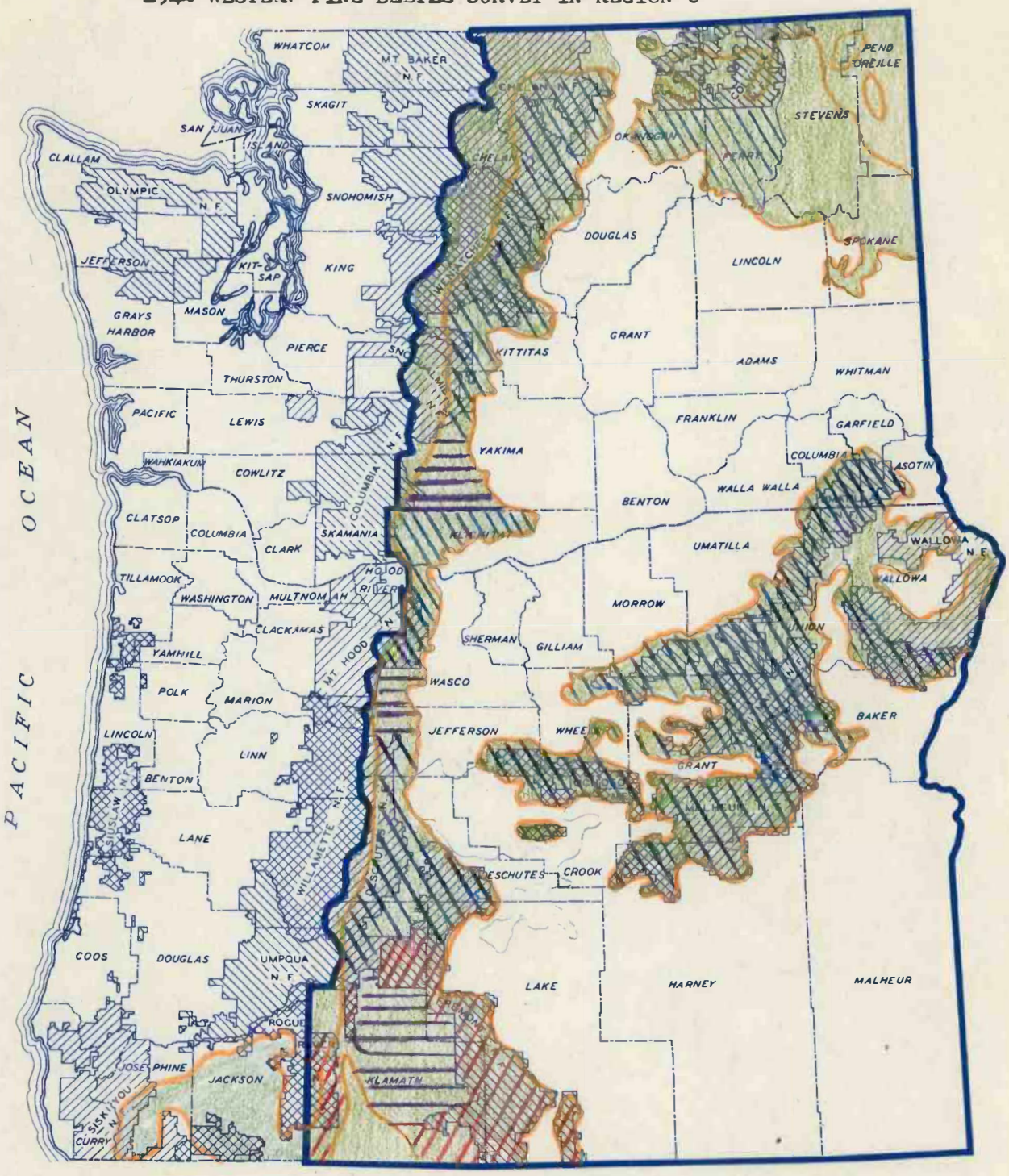

FIGURE I. FORESTED AREA EAST OF CASCADE RANGE IN OREGON AND WASHINGTON

PACIFIC NORTHWEST FOREST EXPERIMENT STATION — FOREST SURVEY

Ponderosa Pine Type 1938

FOREST ZONE

JUNIPER WOODLAND ZONE

Surveyed by B.E.&P.Q + Forest Service

Surveyed by B.E.&P.Q. + Indian Service

Surveyed by B.E.&.P.Q. + Private

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ADMINISTRATIVE SUMMARY
WESTERN PINE BEETLE SURVEY
in
OREGON AND WASHINGTON
1942

The following summary has been prepared to record various details connected with the conduct of the 1942 forest insect survey and to provide a detailed acoount of the costs. Results of the survey will be reported upon by individual forests at a later date.

Objective

The primary objective of the 1942 survey was to determine the current insect-caused losses on semi-permancent 320-acre check plots located in virgin ponderosa pine stands of Oregon and Washington. These data provide the basis for generalized estimates of current damage to mature ponderosa pine in Region 6. Except for the selectively cut stands in the Weyerhaeuser Timber Company sanitation-salvage logging experiment, no attempt was made to secure loss data on cut-over lands. A secondary objective of the survey was to obtain data on green stand volume on the plots and to classify this green stand according to the California system of risk rating.

Survey procedure

A 100 percent cruise of the insect-caused loss (unrecorded portions of the 1941 loss and that portion of the 1942 loss evident upon the date cruised) was made in the usual manner by taking successive 10-chain strips through each plot. In conjunction with the loss cruise, a 10 percent green stand cruise was made by the one-quarter acre randomized circular plot method. All trees on the quarter acre plots were recorded by diameter to the nearest even inch and were classified according to the California system of risk rating.

A total of 122 plots, equalling 40,640 acres, were surveyed in this manner by ~~the~~ three-man crews. ~~comprised wholly~~, These crews were manned ~~or~~ in part by ~~of~~ permanent personnel of the Portland Forest Insect Laboratory. Supplementary personnel was contributed by the Forest Service, Indian Service, and Weyerhaeuser Timber Company. Equipment for the crews was provided by the Bureau of Entomology and Plant Quarantine and by the Forest Service.

Through the concerted effort of all concerned, most plots (74 percent of the total cruised) were covered in October, the month during which maximum manpower was available. The remaining plots (26 percent of the total cruised) were covered during the months of July, August, September, and November. On the whole, the 1942 survey was conducted later in the season than heretofore. For this reason it is probable that a relatively more accurate estimate of current loss was obtained in 1942.

Of necessity the plots cruised in 1942 were fewer than in recent years; 122 in 1942 as compared with 184 in 1941 and 213 in 1940. This reduction in coverage was largely brought about because of a drastic limitation of travel funds and because of an almost equally drastic shortage of personnel available for the work. A few check plots were dropped because they had been cut over. Others were dropped because they were not in commercially important units. Even in units of commercial importance there had to be a selection of only the most representative plots. On some forested areas, particularly on Indian Reservations, plots that had previously comprised 640 acres were reduced to 320 acres in most cases. Finally, through careful budgeting of funds and efforts, satisfactory coverage of all the principal commercial ponderosa pine stands was obtained. An itemized breakdown of the survey is shown in the following table.

SURVEY DATA - 1942

FORESTED AREA	COOPERATOR	CREW LEADER	TIME OF CRUISE	CHECK PLOTS NO.	CRUISED GROSS ACREAGE
OREGON					
Deschutes N. F.	Forest Service	Whiteside	9/22 - 10/8	15	4,800
Fremont N. F.	Weyerhaeuser Timber Company	Whiteside	7/22 - 7/29	22	8,640
		Whiteside	8/14 - 8/20		
		Bedard	9/15 - 9/17		
		Bedard	9/20 - 10/6		
Malheur N. F.	Forest Service	Hall	10/27-10/30	11	3,520
		Buckhorn	10/19-10/23		
		Buckhorn	11/1 - 11/4		
Mount Hood N. F.	Forest Service	Whiteside	10/9 -10/12	3	960
Ochoco N. F.	Forest Service	Furniss	9/28 - 10/3	20	6,400
		Hall	10/3 -10/26		
Rogue River N. F.	Weyerhaeuser Timber Company	Bedard	9/18 - 9/19	2	640
Umatilla N. F.	Forest Service	Buckhorn	10/25-10/31	5	1,600
Whitman N. F.	Forest Service	Buckhorn	10/12-10/18	6	1,920
		Buckhorn	10/24-10/25		
Klamath I. R.	Indian Service	Bedard	10/8 -10/15	8	2,560
Warm Springs I. R.	Indian Service	Whiteside	10/19-10/24	7	2,240
	Total			99	33,280
WASHINGTON					
Chelan N. F.	Forest Service	Furniss	10/8 -10/13	4	1,280
Snoqualmie N. F.	Forest Service	Furniss	10/18-10/23	4	1,280
Wenatchee N. F.	Forest Service	Furniss	10/4 - 10/7	2	640
Colville I. R.	Forest Service Indian Service	Furniss	10/14-10/17	4	1,280
Yakima I. R.	Indian Service	Whiteside	10/25-10/31	6	1,920
Klickitat County	Forest Service	Whiteside	10/13-10/16	3	960
	Total			23	7,360
REGION 6 TOTAL				122	40,640

Survey costs

Expenditures of the cooperating agencies for the 1942 survey are given in the following table.

COST DATA - 1942 SURVEY

AGENCY BREAKDOWN	MAN-DAYS	SALARY	PER DIEM ACCOUNT	TRUCK OPERATION	AGENCY TOTAL
B.E. AND P.Q.					
Adams	22	$ 99.00			
Bedard	22	201.52	$ 18.50 (T. R.)	$21.24	
Buckhorn	44	268.84	96.50	33.90	
Furniss	26	224.22	60.60	31.07	
Hall	33	295.35	78.60	18.63	
Hess	13	72.15	16.56		
Wallace	22	99.00			
Whiteside	51	382.50	107.25	25.73	AGENCY TOTAL
Total	233	$1642.58	$378.01	$130.57	$2151.16
FOREST SERVICE					
Biel	26	$117.00	$31.04		
Elliott	24	104.00	43.20		
Houston	31	155.00	49.60		
Howard	18	87.00	27.50		
Hudson	26	144.30	31.04		
Jurgens	18	98.00	27.50		
Mason	31	124.00	49.60		
Watson	24	104.00	43.20		
Total	198	$933.30	$302.68	$3.45	$1239.43
INDIAN SERVICE					
Klamath I. R.	16	$97.60	$28.80		
Yakima I. R.	10	75.00	12.00	$5.00	
Warm Springs I. R.	22	165.00	24.00	10.00	AGENCY TOTAL
Total	48	$337.60	$64.80	$15.00	$ 417.40
PRIVATE					
Weyerhaeuser Timber Company			$82.70		$82.70
SURVEY TOTAL	479	$2913.48	$828.19	$149.02	$3890.69

It should be mentioned that the preceding summary does not include the work done on either the "survey methods experiment" conducted by Buckhorn and Whiteside on the Silver Lake Area of the Fremont National Forest, or on the Weyerhaeuser Timber Company sanitation-salvage logging experiment; except that the acreage, man-days, and costs actually involved in recruising the 320 acre plots located on these areas have been included as representing part of the check plot survey of 1942.

By way of conclusion it can be said that, during the 1942 check plot survey, 84.8 acres were cruised per man day at a cost of $8.12 per man day, or $.095 per acre.

Submitted by

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